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H. W. GORDON, J. E. BOGEN, and R. W. SPERRY, Division of Biology, California Institute of Technology, Pasadena, and Ross-Loos Medical Group, Los Angeles, California. Tests for hemispheric deconnection symptoms following partial section of the corpus callosum in man.

Two patients of P. J. Vogel with surgical section of the anterior commissure and genu and body of the corpus callosum leaving the splenium intact were tested for impairment in interhemispheric functions. Tests for right-left integration involved optic perception in the visual half-fields, manual stereognosis, manual motor control, olfaction, and combinations of these, all of which reveal specific deficits when section of the forebrain commissures is complete. The two patients with an intact splenium, however, were able to perform well in all test tasks. The results show that in man a small fraction of the posterior corpus callosum can be remarkably effective in compensating for a broad spectrum of callosal functions. For example, the two patients could write with the left hand; copy geometric figures with either hand; describe unseen objects presented to either the left or right hand, pictures presented in either left or right visual field, and odors presented to either nostril. Block design and spatial relations tests were performed equally well with either hand. All stimuli whether tactual, visual or olfactory presented initially to one hemisphere could easily be compared and matched to stimuli presented initially to the other hemisphere. The findings contrast with those reported for patients having anterior callosal lesions of comparable extent but produced by neoplastic invasion or by vascular failure and accompanied by extracallosal damage. Such cases have displayed symptoms as severe as those from complete commissure section. The marked difference between the effects obtained when associated cerebral damage is present confirms the potentiating effect of associated damage and the need for caution in assessment of callosal functions in patients having different kinds of pathology. The results to date leave undefined the functional role of the massive frontal sectors of the corpus callosum.

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